

Taking a drinking water sample for testing

Tips for owners and operators of drinking water systems covered by Ontario Regulation 170/03

Ontario Regulation 170/03, the Drinking Water Systems regulation, applies to:

- municipal residential drinking water systems;
- non-municipal year-round residential drinking water systems (systems serving year round residential developments with six or more private residences such as apartment buildings, private subdivisions; condominium or townhouse complexes, mobile home parks or trailer parks serving six or more sites year-round); and
- other drinking water systems serving designated facilities (such as schools, day cares, nursing homes and social care facilities).

For detailed information on microbiological (bacteria) and chemical parameters you must test for, where in your drinking water system to take your samples, and how often to sample and submit samples for testing, see the guide titled *Providing Safe Drinking Water to the Public* (one guide is available for non-municipal year-round residential systems and one for systems serving designated facilities). These are available online at www.ene.gov.on.ca/envision/water/sdwa/dwsr.htm or by calling the ministry's Public Information Centre at 1-800-565-4923

Before you begin taking drinking water test samples, you should

1. Ensure that you are registered with the Ministry of the Environment. To register, complete the *Drinking Water System Categorization Questionnaire* and the *Drinking Water System Profile Information* forms available at www.ene.gov.on.ca/envision/water/sdwa/forms.htm
2. Contact a commercial licensed laboratory (that is licensed to test for all parameters that apply to your system) to make arrangements for your water testing. Call the ministry's Public Information Centre at 1-800-565-4923 for information on commercial licensed laboratories near you. The list is also available online at www.ene.gov.on.ca/envision/water/sdwa/licensedlabs.htm
3. Notify the Ministry of the Environment of your intent to test your drinking water by submitting a *Laboratory Services Notification* form available from the web site listed above. This form requires the identification of the commercial licensed laboratories you have hired for testing. The ministry will give you a drinking water system number – your own reference number for all your samples and tests.
4. Ask your licensed laboratory for a *Chain-of-Custody* form. This form must be completed

with each drinking water test sample submitted for testing.

General sample handling

The way you collect, store and transport your drinking water test sample affects the accuracy of your test results. Improper handling may show signs of drinking water contamination where it may not truly exist. The licensed laboratory you have hired will give you detailed instructions for handling a drinking water test sample, including:

- collection procedures;
- containers to use, including those supplied by the laboratory;
- labeling of samples;
- completion and submission of forms;
- transportation of samples; and
- time periods for delivery of samples.

Carefully follow the instructions from the laboratory, subject to the requirements of O. Reg. 170/03, to ensure accurate results. Otherwise, samples may have to be re-taken. Below are some general tips for collecting and handling drinking water test samples.

Where to collect your drinking water sample

- Take the distribution microbiological drinking water sample from any tap in the distribution or plumbing system – preferably from a cold-water tap used by the public for drinking purposes. If required, take the raw water microbiological sample from a location where treatment has not yet been applied.
- Take your chemical drinking water sample from a point where water enters the distribution system or connected plumbing, except for lead and trihalomethane samples. Lead must be sampled from a location that is most likely to have higher lead levels (e.g. the oldest pipes). Trihalomethanes (only if your system is municipal residential or non-municipal year-round residential and provides chlorination or chloramination) must be sampled from a location in the distribution system or connected plumbing that is likely to have an elevated potential for the formation of trihalomethanes (e.g., the ends of the lines).

- If your system is using point-of-entry (POE) treatment, in accordance with the regulations, then distribution samples must be taken on a rotating basis from a location downstream of each POE treatment unit (that is, from the plumbing system after treatment unit). Taking samples on a rotating basis means that once a sample is taken from a particular location, subsequent samples must be taken from other POE treatment unit locations before returning to a location that has already been sampled.

How to collect your drinking water sample

- **Remove** any aerators, tap screens, hoses, filters, etc., from the tap.
- **Wash your hands** or wear disposable gloves.
- **Label the bottle before taking the sample** as it may be difficult to write on a wet label. On the label, put the date, your drinking water system number, the location where the sample was taken, and indicate whether it is *distribution* or *raw water* sample.
- **Let the water run cold** for at least two minutes before collecting the sample.
- **Use a sterile sampling bottle provided by a licensed laboratory to collect the water.** These bacteriological sampling bottles have tamper-proof seals. Don't use one if the seal has been broken; ask the laboratory for a new one.
- **Don't rinse sampling bottle before using**, or you will remove some or all of its preservative and ruin the sample.
- **Don't touch the inside or lip of the sampling bottle or its cap**, otherwise you may contaminate your sample. The inside of the cap and container should only come into contact with the air and the collected sample of drinking water.
- **Fill the sampling bottle up to the shoulder**, leaving an air space. Don't allow the water to overflow. Adjust the tap flow rate to prevent splashing.
- **Cap the bottle immediately** after collecting the sample, and seal it properly. Remember not to touch the inside cap with your hands!

How to store your sample and send it to the laboratory

- **Submit your drinking water test sample to the licensed laboratory as quickly as possible after collection.** To give the most accurate results, testing for bacteria must begin within 24 hours of collecting the drinking water sample. Be sure to obtain clear instructions from the laboratory regarding sample submission drop-off time.
- **Refrigerate samples until ready for shipping.**
- **Ship your sample bottles or containers to the laboratory in coolers, or in foam pack containers, with ice or ice packs.** Don't pack the bottles with loose ice as this may contaminate the sample. If you only have loose ice, encase the sample/container in waterproof packaging or a sealed container. Be sure it is well protected from other samples that you may be sending to the laboratory at the same time (e.g. sewage samples).
- **Don't allow samples to freeze.** In winter, you may want to take advantage of heated shipping offered by some courier companies.
- **Package the completed *Chain-of-Custody* form, provided by the licensed laboratory, with the collected sample.** If sending it inside the cooler containing the sample, ensure that the form is enclosed inside a waterproof package (e.g., a new zip-lock bag).

Recording your samples and test results

- Your drinking water system number **MUST** be noted on the completed *Chain-of-Custody* form, in order to show that your drinking water test sample is in compliance with O. Reg. 170/03. Carefully follow the instructions from the licensed laboratory for recording your sampling information on the form.
- The licensed laboratory will send you a report on the test of your drinking water sample within 28 days of the data approval.
- If the results are adverse, you must take corrective action. Check your *Providing Safe Drinking Water to the Public* guide for the steps to take.

- How long you must keep your laboratory test result records depends on what you are testing for and the type of drinking water system. See s. 13 of O. Reg. 170/03 for requirements. Some examples of records retention requirements include:
 - at least two years for microbiological test results for most systems;
 - at least six years for nitrate and nitrite test results; and
 - at least 15 years for inorganic, organic, lead, sodium, fluoride and any other chemical or radiological, pesticide and health-related parameter test (except for Large Municipal Residential Systems).

For More Information

- If you would like other guides and fact sheets related to drinking water, please contact the Ministry of the Environment's Public Information Centre at: 1-800-565-4923 or visit the Ministry of the Environment's website at www.ene.gov.on.ca/envision/water/sdwa/dwsr.htm
- To be clear about your specific legal requirements, refer to the Drinking-Water Systems Regulation (O.Reg.170/03) and the *Safe Drinking Water Act, 2002* at www.e-laws.gov.on.ca or by calling the Public Information Centre.